Marvair® Reverse Cycle Chiller

Models CHA24, 36, 48 & 60

General Description

The Marvair® reverse cycle chillers, Model CHA, are self-contained, water cooled units built in cooling capacities of 24,000, 36,000, 48,000 and 60,000 BTUH. Two control schemes are offered. The CHA chiller can operate as a stand alone unit or when additional capacity is required, with multiple, staged chillers. Custom units in various sizes and configurations can be built to meet customer requirements.

All Marvair® reverse cycle chillers use the environmentally friendly, non-ozone depleting R410-A refrigerant and are factory charged, wired and tested.

Model CHA24

CE

Common cabinets and footprints

The four units are built in two cabinets. The 2 & 3 ton chillers share a common cabinet and the 4 & 5 ton chillers have the same cabinet. For boats going to tropical climates, a smaller chiller can be easily upsized to the larger capacity unit without redesigning the engine room.

All of our chillers are completely enclosed, eliminating the need for the boat builder to encase the units. The white, corrosion resistant aluminum side, front and top panels enhance the appearance of the engine room.

Ease of installation and service

Six strategically positioned screws allow the front, top and left side panels to be removed- all from the front of the unit. The refrigerant access ports and the flow switch can be accessed without removal of the manifolds.

Installation is simplified with a readily accessible terminal strip for both the power and control (low voltage) wiring. For accurate sensing of the chilled water temperatures, pots are factory brazed onto the chilled water inlet line (return from the loop) and on the chilled water out line (supply to the loop). The pots ensure accurate sensing of the water temperature by the temperature sensors. The temperature sensor on the inlet (return) turns the chiller on & off, depending upon the water temperature. If the chiller is in the cooling mode and the water temperature is above the set point, the chiller will turn on to cool the loop water. If the chiller is in the heating mode and the water temperature is below the set point, the chiller will turn on to heat the loop water.

The temperature sensor on the outlet pipe (supply) provides freeze protection and high limit temperature conditions.

The ends of the sensor wires, the pots and the jacks on the control board are color coded to insure the correct placement of the sensors should they need to be replaced. Two condensate line openings on the base pan facilitate the drain line connection. Factory provided hold down clamps are included.

A Marvair® first-Interchangeable control boards

All Marvair® chillers and air handlers use the same control board, reducing the spares required. The display automatically determines which control board it is connected to and displays the appropriate information and icons.

The board is easy to set up for operation with a single or two chillers. For a two chiller installation, either chiller can be selected as the second stage unit by simply moving a jumper on the board. Preset time delays and temperature settings automatically configure that chiller as the second stage unit. For equal run time between the two chillers, each board has an internal time clock that records run time of the chiller. By simply moving the jumper on each board, your service dealer can easily swap the first and second stage units.

Innovative Display

The display is on a cable (up to 50 ft./15.2m) to allow it to be mounted in an accessible location- not buried inside the electrical box- for quick viewing of the operation and set points of the chiller. Readily understandable icons are used to show the status.

Rugged components

The CHA reverse cycle chillers feature a scroll compressor with a suction line accumulator, a filter drier, high and low refrigerant pressure switches. The switches are brazed in the refrigerant line to eliminate the leaks and nuisance trips common with screwed on switches. The coaxial tube-in-tube condenser is constructed of corrosion resistant cupronickel water tubing and copper refrigerant tubing. The flat plate evaporator is constructed of stainless steel for the water loop system. A rugged, easily accessible, paddle type flow switch in the chilled water line senses water flow and will not allow the compressor to operate if water flow is inadequate. To ensure years of dependable performance, the control box and the supports for the condenser and evaporator are constructed of superior corrosion resistant aluminum. A stainless steel condensate tray is available for installations where a factory supplied tray is required.

All Marvair® reverse cycle chillers are built to the requirements of UL Standard 484, 7th Edition. All Marvair® chillers meet applicable ABYC and US Coast Guard regulations, CE Directives and all applicable Air Conditioning and Refrigeration Institute (ARI) standards. Marvair® is an ISO 9001-2000 registered company.

Model Identification

CH	A	••	RC	•	•
CH - Chiller	A = R410-A Refrigerant	Nominal Capacity 24 = 24,000 BTUH 36 = 36,000 BTUH 48 = 48,000 BTUH 60 = 60,000 BTUH	System Type RC = Reverse Cycle	Nominal Voltage A = 208/230V,1ø,60Hz C = 208.230V,3ø,60Hz F = 220V,1ø,50Hz W = 220/240V,1ø,50Hz	Controls S = Single Unit M = Multiple Units

Performance and Electrical Data

Model Number	Capacity (Btu/Hr)	Volt-Ph-Hz	Nom. Cooling Amps[1]	LRA[2]	MCA[3]	MFS[4]
CHA24RCA	24,000	208/230-1-60	6.1	58.3	16.8	30
CHA24RCC		200/230-3-60	4.9	55.0	9.7	15
CHA24RCD		460-3-6	2.4	22.4	5.0	10
CHA24RCF		220/240-1-50	6.1	60.0	13.6	20
CHA24RCE		380/420-3-50	2.7	28.0	6.4	10
CHA36RCA	36,000	208-230-1-60	9.1	79.0	20.8	35
CHA36RCC		208/230-3-60	7.1	88.0	13.0	20
CHA36RCD		460-3-60	3.5	38.0	7.3	10
CHA36RCF		220/240-1-50	9.8	97.0	22.4	40
CHA36RCE		380/420-3-50	3.9	44.0	7.5	10
CHA48RCA	48,000	208/230-1-60	12.2	98.0	19.8	35
CHA48RCC		208/230-3-60	8.0	83.1	17.1	30
CHA48RCF		220/240-1-50	13.0	136.0	26.4	45
CHA60RCA	60,000	208/230-1-60	15.4	41.0	32.8	50
CHA60RCC		208/230-3-60	10.5	24.4	19.5	35
CHA60RCF		220/240-1-50	17.2	38.2	30.6	50

Notes:
[1]Cooling amps at 45ºF (7.2ºC) evaporating temperature and 100ºF (37.8ºC) condensing temperature as per ABYC guide lines. Amp draw will vary with conditions and will be higher in the heating mode.
[2]LRA= Locked Rotor Amps
[3]MCA= Minimum Circuit Ampacity (Wire Sizing)
[4]MFS= Maximum Fuse Size

Minimum Seawater Flow Rates

Model	Nominal Cooling Capacity	Gal/Min	Litres/Min
CHA24	2 tons	8.3	32
CHA36	3 tons	12.6	47
CHA48	4 tons	17	63
CHA60	5 tons	21	79

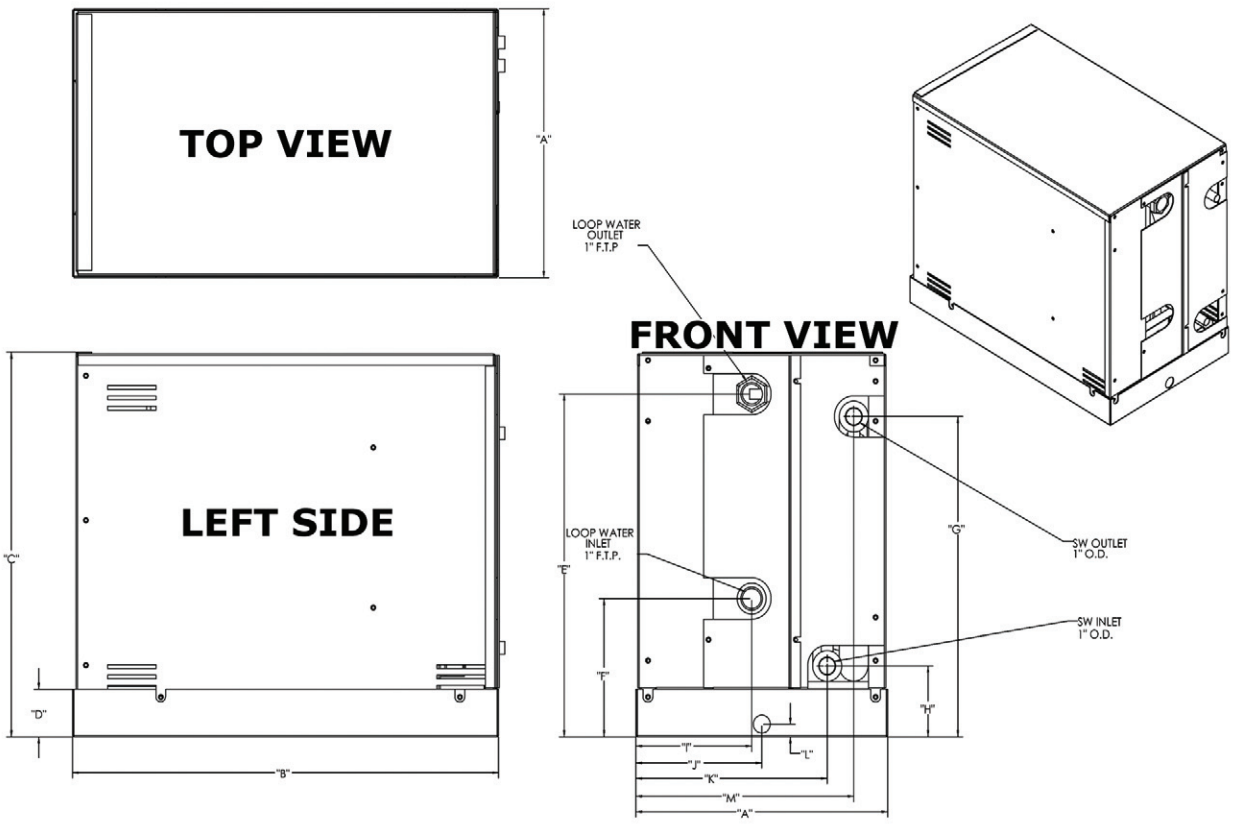
Minimum Chilled Water Flow Rates

Model	Gals/Min.	Litres/Min
CHA24	6	23
CHA36	9	34
CHA48	12	45
CHA60	15	57

Chiller Weights

Model	Lbs.	Kgs.
CHA24 60 Hz.	115	52.3
CHA24 50 Hz.	120	54.6
CHA36 60 Hz.	155	70.5
CHA36 50 Hz.	160	72.7
CHA48 60 Hz.	180	81.8
CHA48 50 Hz.	190	86.4
CHA60 60 Hz.	200	90.9
CHA60 50 Hz.	210	95.5

Dimensional Data
Two and three ton chiller, models CHA24/CHA36



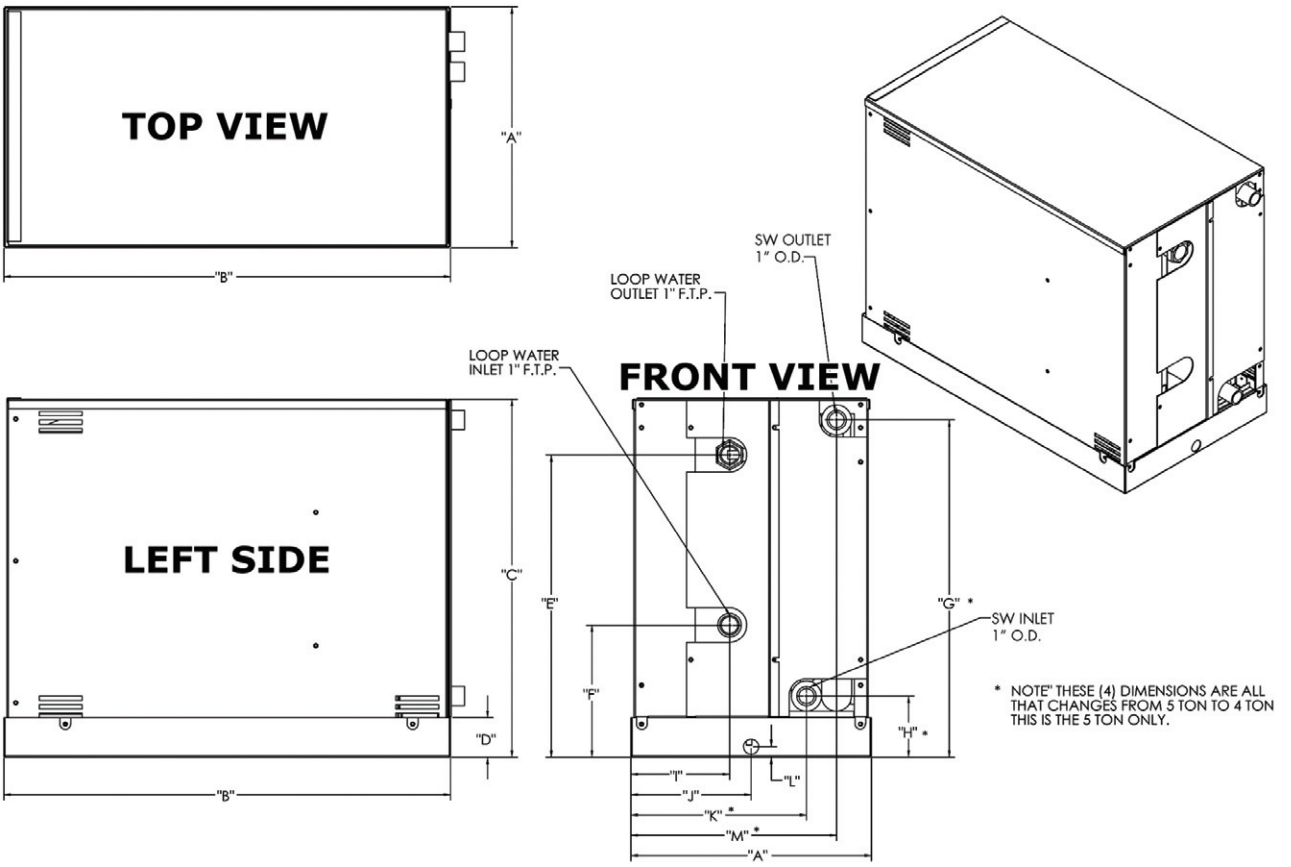
Dimensions - CHA24

	A	B	C	D	E	F	G	H	I	J	K	L	M
Inches	*13*	*22*	*18-5/8*	*2-1/4*	*16-5/8*	*6-5/8*	*14-5/8*	*4-1/4*	*6*	*6-1/2*	*10-1/4*	*5/8*	*11-3/8*
MM	*330*	*559*	*473*	*59*	*421*	*170*	*373*	*109*	*152*	*165*	*260*	*16*	*289*
SW IN: 1" OD SW Out: 1" OD CW In: 1" FPT CW Out: 1" FPT													

Dimensions - CHA36

	A	B	C	D	E	F	G	H	I	J	K	L	M
Inches	*13*	*22*	*18-5/8*	*2-1/4*	*16-5/8*	*6-5/8*	*15-1/2*	*3-3/8*	*6*	*6-1/2*	*9-7/8*	*5/8*	*11-1/4*
MM	*330*	*559*	*473*	*59*	*421*	*170*	*394*	*87*	*152*	*165*	*251*	*16*	*286*
SW IN: 1" OD SW Out: 1" OD CW In: 1" FPT CW Out: 1" FPT													

Four and five ton chiller, models CHA48/CHA60



Dimensions - CHA48

	A	B	C	D	E	F	G	H	I	J	K	L	M
Inches	*14*	*26*	*20-7/8*	*2-1/4*	*17-5/8*	*7-5/8*	*17-1/2*	*3-5/8*	*5-3/4*	*7*	*10-5/8*	*5/8*	*12-1/8*
MM	*351*	*660*	*529*	*59*	*447*	*195*	*445*	*93*	*146*	*178*	*271*	*16*	*309*
SW IN: 1" OD SW Out: 1" OD CW In: 1" FPT CW Out: 1" FPT													

Dimensions - CHA60

	A	B	C	D	E	F	G	H	I	J	K	L	M
Inches	*14*	*26*	*20-7/8*	*2-1/4*	*17-5/8*	*7-5/8*	*19-5/8*	*3-1/2*	*5-3/4*	*7*	*10-1/4*	*5/8*	*12*
MM	*351*	*660*	*529*	*59*	*447*	*195*	*498*	*90*	*146*	*178*	*260*	*16*	*304*
SW IN: 1" OD SW Out: 1" OD CW In: 1" FPT CW Out: 1" FPT													

As part of the Marvair® continuous improvement program, specifications are subject to change without notice.

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